CLAIMS

What is claimed is:

1.   A foot measurement system comprising:

foot data generating means for generating pixel data for foot shape and transmitting them to the exterior, said pixel data being obtained by emitting light to a foot placed on a substrate and analyzing information of the reflected light; and

image treatment means for generating foot image through analyzing said pixel data transmitted from said foot data generating means with line-scan algorithm and/or stereo vision algorithm.

2.   The foot measurement system according to claim 1, wherein said foot data generating means comprises:

an image generating part for generating said pixel data for foot shape through emitting light to said foot and analyzing said information of the reflected light;

a foot data memory part for storing said generated pixel data;

driving means for moving said image generating part; and

a control part for controlling said image generating part, said foot data memory part and said driving part.

3.   The foot measurement system according to claim 2, wherein said image generating part comprises a light generating part below said substrate, for emitting light to the bottom of said measured foot; and an image sensor or sensors for detecting the light reflected from the bottom of said foot and generating said pixel data, and said driving means is for moving said image generating part horizontally below said substrate.

4.   The foot measurement system according to claim 2, wherein said image generating part comprises a light generating part obliquely placed over said measured foot, for obliquely emitting light to the top and side surface of foot; and an image sensor or sensors for detecting the light reflected from the surface of foot and generating said pixel data, and said driving means is for rotating said image generating part around said measured foot.

12

5.   The foot measurement system according to claim 4, wherein over said substrate is equipped a circular type of movement rail on which said image generating part can be mounted to rotate around said measured foot.

6.   The foot measurement system according to claim 3, wherein said image generating part further comprises a lens or lenses in the front of said image sensor(s), for collecting said reflected light.

7.   The foot measurement system according to claim 4, wherein said image generating part further comprises a lens or lenses in the front of said image sensor(s), for collecting said reflected light.

8.   The foot measurement system according to claim 1, wherein said image treatment means extracts from said pixel data transmitted from said foot data generating means, at least one piece of information selected from the group consisting of the following data:

Ball Girth;

Foot Length, which is a distance from the end point of foot to the longest toe end;

Instep Length, which is a distance from the end point of foot to the inside middle foot point;

Fibular Instep Length, which is a distance from the end point of foot to the outside middle foot point;

Anterior Foot Length, which is a distance from the longest toe end to the inside middle foot point;

Foot Breadth, which is a distance from the inside middle foot point to the outside middle foot point;

Heel Breadth, which is a vertical distance to Foot Length on the location distant to the degree of 16% of Foot Length from the end point of foot;

Ball Breadth, which is a vertical distance to Foot Length from the inside middle foot point to the outside middle foot point, namely, is a vertical component of Foot Breadth to Foot Length;

Ball Flex Angle, which is a foot boundary angle made by the fore and rear parts of foot at a time of walking;

Medial Angle, which is a foot boundary angle distinct and made by the anatomical fore and rear parts of foot;

13

Lateral Angle, which is an angle formed between the side of foot and the centerline of foot;

Toe V Angel, which is an angle formed between the little toe and the centerline of foot;

Toe I Angle, which is an angle formed between the big toe and the centerline of foot; and

Little Toe Angle.

9.   A foot measurement method comprising the steps of:

emitting light to the bottom of foot and/or the top and side surface of foot and detecting the reflected light with a sensor or sensors;

converting said reflected light detected with said sensor(s) into electronic signal and converting said electronic signal into pixel data including image information;

generating three-dimensional image coordinates of foot from said pixel data with using a line scan method and/or a stereo vision method; and

calculating at least one distance and coordinates for each part of foot from said three-dimensional image coordinates.

10.   The foot measurement method according to claim 9, wherein said emitting and detecting step is performed by establishing line light source below a substrate on which said measured foot is located and moving said light source from a start point of foot to a end point of foot.

11.   The foot measurement method according to claim 9, wherein said emitting and detecting step is performed by establishing line light source at a place distant to a degree of predetermined distance from said measured foot and rotating said light source around said measured foot.